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ABSTRACT

Interest has recently revived in the theory that the left and right hemispheres of the brain control distinguishable facets of cognitive behavior. Robert Samples has described the realm of the left hemisphere as that of rationality, logic, linear thinking, and separation of reality into its component parts. He sees the right hemisphere as the realm of metaphor, intuition, wholistic thinking, creativity, and synthesis. Jerome Bruner saw the right hand (controlled by the left hemisphere) as symbolizing order and action while the left hand (controlled by the right hemisphere) symbolized sentiment and intuition. In the realm of educational policy, partially because of cultural bias favoring rationality over intuition, there has been increasing pressure to ground the process of policy formulation in rationality. While rationality is no doubt necessary for policy-making, it is not enough. Policy-making also requires the use of intuition, imagination, and hunch. This type of intuitive thought is especially valuable in the creativity involved in conceiving of policy alternatives. Thus, the left hand has lessons that, taken together with those of the right, will enable educators to conceive and forge stronger and better policy in education. (Author/JM)

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On Policy-Making: Lessons From the Left Hand.*

Michael E. Manley-Casimir

[The last decade has witnessed increasing pressure to ground the process of policy formulation in rationality. This pressure takes the form of calls for more and better data to inform the process; for studies of the future and better forecasting techniques; for systematic formulation of policy choices, principles to guide action and policy alternatives; for phased implementation and evaluation.

This paper recognizes the validity of this pressure but argues that policy formulation still requires the use of intuition, imagination and hunch. The argument proceeds from an analysis of the cultural and intellectual bias supporting rationality to a new synthesis of the rational and non-rational elements in educational policy formulation. This synthesis draws on the recent psychological research differentiating the functions of the right and left hemispheres of the brain.]

Perhaps the moment is uniquely propitious for the left hand, for a left hand that might tempt the right to draw freshly again, as in art school when the task is to find a means of imparting new life to a hand that has become too stiff with technique, too far from the scanning eye. Bruner: On Knowing, p. 8.

Perhaps the start of a paper is a propitious time to explain the genesis of the idea that is its focus. It is not always clear, however, where an idea begins, what prompts its first form, how it takes shape and develops. The idea for this paper is no exception--it is not attributable to a single blinding insight, a revelation. Rather it is the outcome of a process of intellectual coalescence, of making connections between and among events and experiences occurring over a decade or more of thinking about, studying and engaging in policy analysis and policy formulation. Some of these events and experiences are identifiable and warrant mention; unlike others, lost in the sands of time, those mentioned here show how I became interested in the idea, why I think it is important and what implications it has for policy making in education.

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* With deference and apologies for distortion to Jerome S. Bruner who wrote *On Knowing: Essays for the Left Hand* (Cambridge, Mass.: Belknap, Harvard University Press, 1964).

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At the outset, then, I should point out that I have long been concerned with and involved in policy analysis and policy formulation in education and in other social arenas. Throughout this time I have become increasingly uncomfortable with the oft heard claim that "what we need in policy formulation is more rationality." My discomfort arises not from the literal intent of the claim itself--indeed we do need more rationality in policy formulation, but from the simplistic assumption lying behind the assertion, namely, that the presence of increased rationality in and of itself will provide solutions to policy related problems.

In a sense my discomfort is more clearly seen through several particular events and experiences. Certainly these provide the impetus for this paper and the argument it contains.

#1. Experience at the Alberta Human Resources Research Council.

Upon returning to Canada in 1971, following my graduate study for the Ph.D. at the University of Chicago, I worked for a year at the Alberta Human Resources Research Council that was, as some of you will recall, ill-advisedly and myopically phased out by the Progressive Conservative government in the first flush of governmental action. My purpose and charge there was to create a policy analysis and formulation unit within the organization. That never came to fruition due to HRRC's early demise, however, my systematic concern with policy analysis and formulation is in part attributable to that experience. Lorne Downey was, of course, the Director of HRRC and I can well remember discussions at that time about the need for increased rationality in policy making--the systematic application of logic and sequential thought to policy issues. But I can also recall my malaise at assertions that policy making in the emerging world requires more than the use of intuition, hunch and seat of the pants judgment.

#2. Experience in Policy Research and Advocacy.

Following HRRC's demise I spent a most enjoyable year working in Saskatchewan in the Research, Planning, Development Branch of the Department of Education, followed by a year working again with Lorne Downey and associates in a private research agency in Edmonton. Despite the obvious differences in institutional autonomy between a government department and a private agency, both experiences permitted me to think about and to actively participate in policy analysis and while the need for rationality remained important I retained my conviction that intuition, hunch and judgment are equal partners in the enterprise of policy-making.

#3. Experience at the 1977 CEA Short Course.

Last year I came to the CEA Short Course for the first time and served then as a group coordinator. The opening papers given here then consisted of Lorne Downey's "Politics and Expertise in Educational Policy-Making" followed by Annette Wright's response "The Real World of the Policymaker: A Direction for Policy Science". Downey distinguished in his paper between a *political* and a *rational* view of policy making. The *political* view is characterized by the emergence in the political arena of a demand for a particular position e.g. "We want a core curriculum," in Downey's analysis and typically moves through a four stage process of issue identification, political action, policy decision, and implementation. The *rational* view, by contrast, seemingly occurs apart from the political arena but like the *political* moves through four stages: policy assessment, policy development, policy choice and policy implementation. "In the *rational* view, policy making was seen as an intelligence-based process of assessing the effectiveness of existing policy, developing viable, new alternative policies, choosing the most robust alternative, and implementing it." (Downey, "Politics and Expertise", 1977: 8).

Wright, responding to Downey's paper, suggests that in the "real world" there is a synthesis between *rational* and *political*. She suggests that the *political* view is inherently 'rational' and consequnetly that the distinction is purely academic, not a feature of real life situations.

These papers provoked much thought and discussion in the group I worked with last year. Discussion flowed around the issue of *political* versus *rational, political* as *rational* and so on. Until it became clear that at least two other elements needed to be entertained in the discussion: i) the possibility that formulating and making policy could have non-rational components, i.e. intuition, insight, hunch, and ii) the possibility of irrational components, i.e. bizarre, random, erratic elements.

#4. Developments in Split Brain Research.

The final set of events relevant to the origin of my paper is the recently revived interest in the theory that the left and right hemispheres of the brain control distinguishable facets of cognitive behavior. I should point out that I profess no expertise in psychology of any variety or tradition. My interest in this field of inquiry was originally sparked by Jerome Bruner's provocative set of essays and more recently by the physiological work of Paul Bakan and Robert Ornstein. Robert Samples' educational applications of the split brain experimental findings also proved to be significant impetus for this paper.

And so, for a starting point, I was drawn back to Bruner's insightful collection of essays, *On Knowing: Essays for the Left Hand*. Re-reading some of these essays, I was impressed anew with Bruner's clean, incisive style of thought and word; not seeking to emulate but to borrow I adapted his title and framed my paper on policy making and the lessons of the left hand for policy making in education. In one sense this is a personal statement, in another informed speculation. I claim no definitive knowledge in the

psychology of knowing, just an abiding interest.

RIGHT AND LEFT: THE QUEST FOR BALANCE

In the introduction to his set of essays Bruner writes

> Since childhood, I have been enchanted by the fact and the symbolism of the right hand and the left--the one the doer, the other the dreamer. The right is order and lawfulness, *le droit*. Its beauties are those of geometry and taut implication. Reaching for knowledge with the right hand is science. Yet to say only that much of science is to overlook one of its excitements, for the great hypotheses of science are gifts carried in the left hand.
>
> Of the left hand we say that it is awkward and, while it has been proposed that art students can seduce their proper hand to more expressiveness by drawing first with the left, we nonetheless suspect this function. The French speak of the illegimate descendant as being *a main gauche*, and, though the heart is virtually at the center of the thoracic cavity, we listen for it on the left. Sentiment, intuition, bastardy. And should we say that reaching for knowledge with the left hand is art? Again it is not enough, for as surely as the recital of a daydream differs from the well-wrought tale, there is a barrier between undisciplined fantasy and art. To climb the barrier requires a right hand adept at technique and artifice. (Bruner, *On Knowing*: 2)

Continuing, Bruner points out that his purpose is to explore the range of the left hand in dealing with the nature of knowing. He cites his experience as a right-handed psychologist, diligently studying cognitive processes, his studies of the teaching process in order to formulate a "theory of instruction" and particularly his studies of learning and teaching mathematics, and his growing recognition that

> the conventional apparatus of the psychologist - both his instruments of investigation and the conceptual tools he uses in the interpretation of his data - leaves one approach unexplored. It is an approach whose medium of exchange seems to be the metaphor paid out by the left hand. It is a way that grows happy hunches and "lucky" guesses, that is stirred into connective activity by the poet and the necromancer looking sidewise rather than directly. Their hunches and intuitions generate a grammar of their own - searching out connections, suggesting similarities, weaving ideas loosely in a trial web. (Bruner, On Knowing, 3-4)

Continuing yet further, Bruner observes "... that the forging of metaphoric hunch into testable hypothesis goes on all the time." And again, he observes

that

> The genre in its very nature is literary and metaphoric, yet it is something more than this. It inhabits a realm midway between the humanities and the sciences. It is the left-hand trying to transmit to the right. (Bruner, On Knowing: 5)

Since Bruner's book first appeared, scholars from diverse disciplines have addressed the issue of ways of knowing. Robert Samples has brought much of this research together in his book The Metaphoric Mind and has developed some educational implications of his work.

In his recent articles on "Mind Cycles and Learning", (Samples: 1977), Samples notes the contribution of the archaeologist Alexander Marshack in his study The Roots of Civilization where Marshack distinguishes between linear or sequential time and storied, cyclical, or wholistic time. The distinction is that the linear-sequential view of time, thought and perception is cultural, whereas the cyclical-wholistic view is more closely associated with the natural world. Samples points out that the cultural emphasis on linear-sequential thought is particularly evident in language and writing.

> With surprisingly few exceptions, languages are linear. Within the linguistics and grammar of a language lie the residual structures that require logical and linear progressions for the transmissions of meaning. Moreover, in the fibre of Western society is woven a predisposition toward logic -- linear logic. Rationality is the style of linear thinking, and the languages we use in reading, writing, and arithmetic are constantly and unendingly in use to remind us of its presence. (Samples:"Mind Cycles", p. 688)

In effect, the linear-sequential view of time, thought and perception is so deeply embedded in the culture that,as Samples notes, psychologists Ornstein and Galin argue the possibility that there is a neuro-psychological basis for the proposition that we have two "minds" in our heads -- two "minds" corresponding to the two cerebral hemispheres.

According to this theory the left cerebral hemispher, which controls the right side of the body, is the site of the rational-linear mind -- the right hand.

> This is the mind that processes perception and sensory input in logical-linear modes. It requires structure and order; it is the residence of reading, writing, and arithmetic. (Samples: p. 688)

By contrast, the right hemisphere, which controls the left side of the body, contains the metaphoric mind -- the left hand.

> Its mode is analogic, intuitive, and wholistic. It also possesses the visual acumen of the brain. This side of the brain thrives on multiple relationships processed simultaneously. (Samples: p. 688)

Samples then turns to the effect of the left cerebral hemisphere, the rational-linear mode, on our minds. He asserts with considerable force that

> The cultural ecology, with its emphasis on structure, logic, and linear conformity, overtly and tacitly prejudices against the analogic, intuitive, wholistic functions of the right mind. (Samples: p. 688)

Examples of this prejudiced view are numerous. For instance, throughout the clinical and neurological reports, there exists a tendency to term the left and right hemispheres, the 'major' and the 'minor' respectively. The stereotypic image of the exclusively verbal, logical scientist who denies that he possesses other skills and finds it difficult to work in the area of art, dance or sports, is a vivid one in our culture.

This duality in human consciousness has also been recognized in other cultures. For instance, the Hopi Indians of the American Southwest distinguished the function of the two hands, one for writing, one for making music. The French word for LAW, that most linear and rational of human pursuits, is droit, which literally means 'right'. William Domhoff concludes his interesting survey of the myth and symbolism of 'left' and 'right' by noting that the left is often the area of the taboo, the sacred, the unconscious, the feminine, the intuitive, and the dreamer. (Domhoff: p. 595)

Ornstein, in his authoritative book, The Psychology of Consciousness, concedes that many disciplines involve a concentration in one of the major modes of thinking: science and law are heavily involved in linearity, duration, and verbal logic, while music, art and sports are more present-centered, aconceptual, intuitive. A complete human consciousness, states Ornstein, involves "the polarity and integration of the two modes, as a complete day includes the daylight and the darkness." (Ornstein: p. 67).

W.I.B. Beveridge, in his The Art of Scientific Investigation, also stresses the need for the development of the intuitive side, the right hemisphere, in scientists. According to Beveridge, intuitions have most often come to scientific investigators when the normal rational processes are temporarily suspended. The French mathematician Poincaré, after dismissing his work from his rational mind, went for a drive in the country. "Just as I put my foot on the brake, the idea came to me." Many others have stressed this point, that reason in science must be complemented by the intuitive mode of thinking. Albert Einstein, for example, said of his own creative processes, "The really valuable thing is intuition." The complete scientific endeavor, argues Beveridge, involves working in both modes. (Beveridge, 1950)

The outcome of Samples' research was a series of statements related to the metaphoric mind, the right cerebral hemisphere, the hemisphere that controls the left hand. Samples argues that:

> Progress in rational (left hemisphere) functions leads to the reduction of variables and higher tendencies to separate thought qualities. Progress in metaphoric (right hemisphere) functions leads to the proliferation of variables and higher tendencies to synthesize thought qualities. The rational processes are linear, the metaphoric processes cyclical. Rational processes are exclusive while metaphoric processes are inclusive. (Samples:p. 690)

Samples identifies and distinguishes four modes of metaphoric thinking: symbolic metaphoric, synergic comparative, integrative metaphoric, and inventive metaphoric.

Symbolic Metaphoric Mode:

"The symbolic metaphoric mode exists when a symbol is substituted for an object, process or condition." (Samples: p. 690) e.g. the sign in the new Calgary Airport - the martini glass → the lounge, the cup → the cafeteria.

Synergic Comparative Mode:

This mode "... exists when two or more objects, processes, conditions are compared in such a way that both are synthesized into a great whole as a result of the comparison." Unlike rational comparisons in which the mental processes act to separate and specify, the synergic comparative mode synthesizes and extends." (Samples: p. 690)

Samples uses a line from Alfred Noyes' poem The Highwayman as an example

"The road was a ribbon of moonlight over the purple moor."

Samples points out that in an analytic mode these qualities, i.e. roadness and ribbonness would be challenged as being different and separate. The power of the synergic comparative mode is that they are not only the same, but become greater than each separately through the comparison and contrast.

Integrative Metaphoric Mode:

This mode of knowing "... occurs when the physical and psychic qualities of the person involved are extended into direct experience with objects, processes, or conditions outside themselves." (Samples: p. 691)

Samples reports that social scientists used this mode for non-verbal exploration of highly technical concepts in their fields. Once done Samples asked children present to explain the concepts. "The social scientists were amazed at the depth of the childrens' comprehension particularly since no word had been spoken." (Samples: p. 691)

Inventive Metaphoric Mode:

> "The inventive metaphoric mode is entered any time a person creates a new level of awareness or knowing as the result of self-initiated exploration of objects, processes, or conditions." (Samples: p. 691)

Samples continues

> The word that matters here is creates as opposed to discovers. Too often rational modes of knowing emphasize discover and demigrate create. (Samples: p. 691)

Samples' research then turned to the relationship between these metaphoric modes and the existing structure of public schools. He found that

> students from age 4 and at any grade level have the capacity to perform effectively in each of these metaphoric modes. In addition, we were able to determine that through use of the metaphoric modes these students were also able to develop more comfort and ability in exploring concepts, ideas and processes in rational ways. (Samples: p. 691)

Examining the opportunities for use of the metaphoric modes in the common curriculum of the school, Samples concludes that while the capacity to perform in all the metaphoric modes is uniform throughout the rational stages of development, the school curriculum reflects diminishing opportunity for use of the metaphoric modes.

(See Figure 1 on page 10)

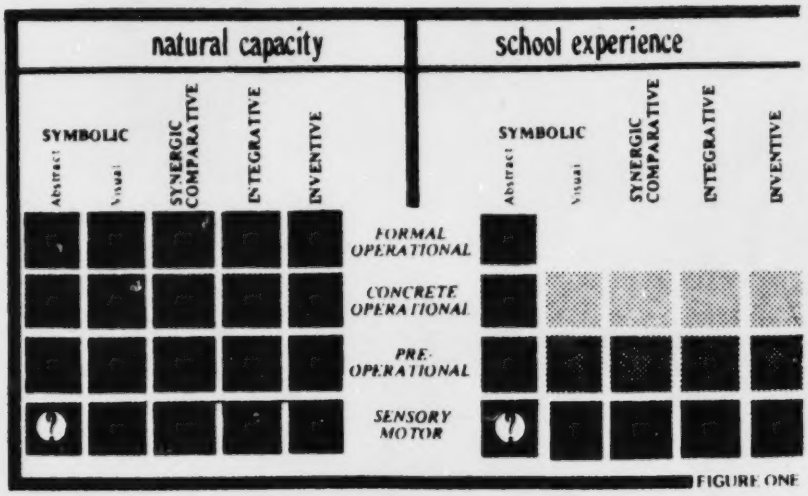


FIGURE ONE

Natural capacity to perform in the metaphoric mode is shown on the left. The sol color throughout indicates that all modes are capable of being used at all levels intellectual maturity. The school (i.e., cultural) experience is shown on the r Only the symbolic abstract mode is consistently rewarded. All other modes a generally excluded via text materials, curriculum emphasis, and pressure on teache and administrators in the area of the three Rs.

Figure 1.

Finally, reviewing the re-emergence of interest in the metaphoric modes of thought, Samples argues that education and culture have systematically downplayed the potential of the metaphoric mind:

> Education and culture have been biased against the whole. They have nurtured a part. But in silence the metaphoric mind has preserved the forgotten parts. The ghost of the genius of all humans is within each of us. (Samples: p. 692)

POLICY MAKING AND THE LEFT HAND

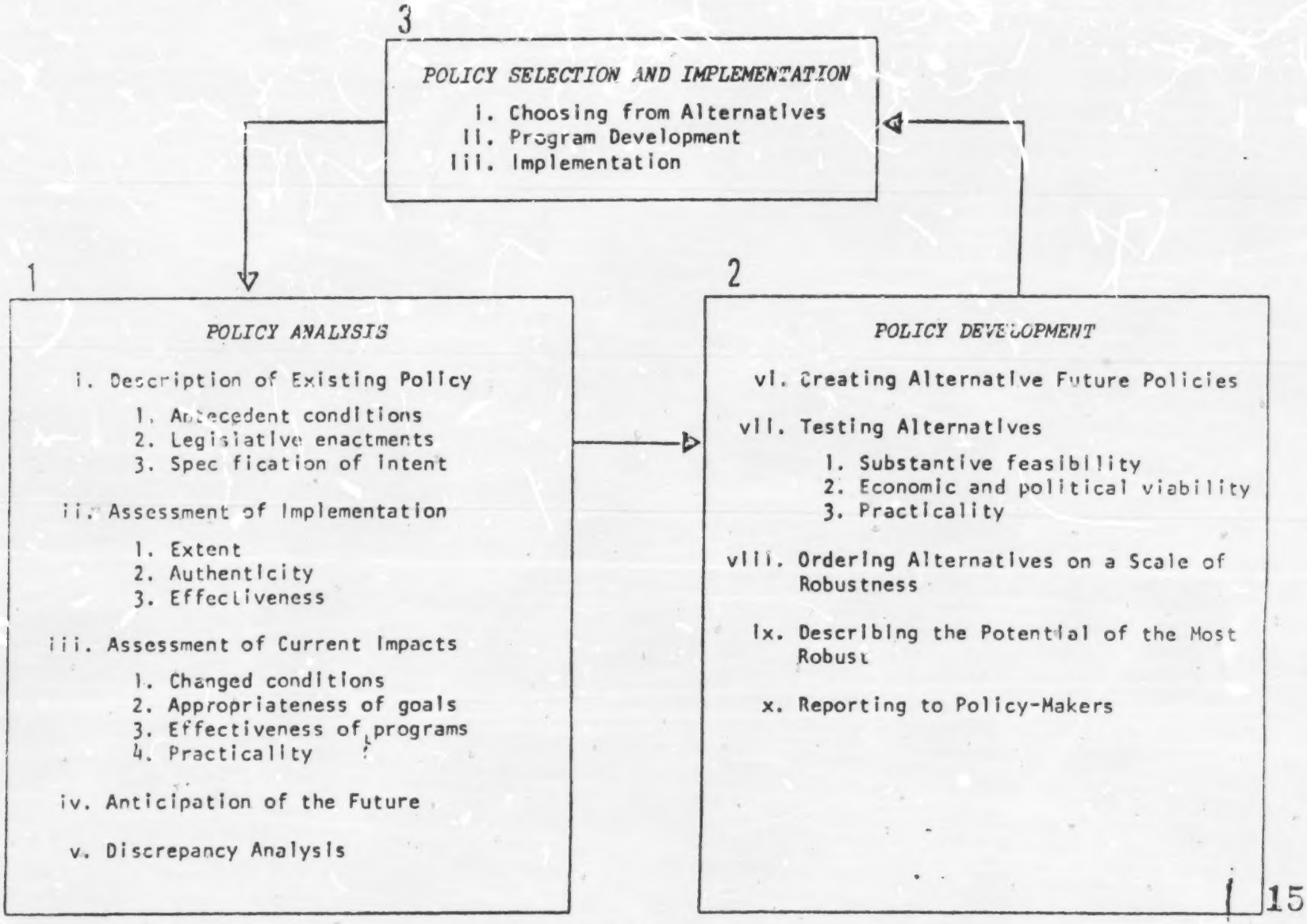
Samples' discussion of the metaphoric mind clearly has diverse implications. In the same way that Piaget's developmental stages have had a substantial influence on the psychology of child development and instructional psychology, more particularly, Samples' identification of these four metaphoric modes could have a similar impact. Whether it does or not remains to be seen.

From my point of view, however, I find Samples' analysis provocative. It suggests that indeed there may be at least one other dimension to the process of policy-making -- another besides the rational, that is. A dimension that may be worth considering as a complementary and interdependent component of policy-making viewed as an intellectual activity. It seems reasonable to argue, if we accept Samples' theory and analysis, that since the culture favours the left hemisphere and the right hand by emphasizing linear, sequential thought and perception, that this "bias" should be dominant in our discussions of policy-making. Further, since the educational enterprise is quintessentially a cultural institution -- charged as it is with the critical role of transmitting the valued aspects of the culture to young people, it is not surprising to find the same commitment to the rational linear mode of thought evident there. So, to the extent that policy-making is characterized by a demand for rationality, the process is certainly in tune with the culture.

What happens though if we acknowledge the plausibility of Samples' metaphoric modes and ask different kinds of questions of the process of policy-making as a result? Will such an approach permit a new synthesis of the rational and the non-rational modes of knowing? To examine the power of the left hand in the process of policy-making it will be useful to examine an explicitly rational model of policy-making. The model, used here for heuristic purposes, is that developed by Downey: "The Policy-Making Cycle: A Process of Government Self-Renewed".

The Downey model proposes a three-phase cycle. It is a strongly rational linear model. It moves in a linear, sequential, cumulative process from policy analysis, through policy development, to policy selection

THE POLICY MAKING CYCLE: A PROCESS OF GOVERNMENT SELF-RENEWAL



and implementation, that in turn feeds back into the process of policy analysis as the cycle repeats itself.

Are Samples' metaphoric modes of thought relevant to this process? If so, how? And at what points in the cycle? It is not difficult to demonstrate the dominance of the right hand in this model. It is considerably more difficult to pinpoint the role of the left hand and to infer from this role the lessons of the left hand for policy-making.

Let us recall in summary the characteristics of the metaphoric mind:

i) it is wholistic rather than analytically divisive; it emphasized integration and synthesis of many variables simultaneously in contrast to the rational linear tendency to analyze a few variables discretely.

ii) it is symbolic; it uses comparison as a technique for synthesizing and extends thought.

iii) it uses non-verbal, intuitive techniques.

iv) it emphasizes creativity rather than discovery.

How does the need for a policy arise? Clearly in some situations the need is made manifest by a specific incident that demands a policy. On other occasions a generalized sense of awareness of the need for a policy may precede the arrival of the instant case - here, perhaps, the awareness stems from a wholistic appreciation of the situation. Awareness of need, whether it arises from an instant case or from a wholistic appreciation is but the first step in the cycle, but the mode of awareness may well influence the subsequent process of policy analysis, casting it either in terms of the rational/linear approach with its emphasis on analytic divisiveness or in

terms of a wholistic analysis.

Even so, the rational-linear mode clearly dominates the cycles at some points. So the description of existing policy, its assessment of implementation, and current impacts places heavy reliance on this mode of thought and analysis. Awareness of changed conditions and anticipation of the future seem to hold greater potential for the use of symbolic thought, comparison, synthesis and extension of thought. Especially so when symbols permit the appreciation of larger, more complex relationships; when comparisons between apparently dissimilar situations permits a new view of policy; when synthesis of several interconnected strands of policy effects a more powerful alternative and extends the thinking in that field.

Perhaps one of the most fruitful aspects of policy development that could use metaphoric modes of thought is that of conceiving of alternatives. Samples argues that the metaphoric mind emphasizes creativity rather than discovery. Surely the act of conceiving alternative future policies can be inherently creative. And so could make powerful use of the inventive metaphoric mode. The use of hypothetical thinking -- the "I wonder what if ..." kind of thought suggests itself here. The use of natural polarities as heuristic devices to advance creative thinking is also relevant. The use of what De Bono calls "lateral thinking" is clearly related.

It is my belief that this kind of thinking -- thinking in the metaphoric mode -- is a natural capacity that is capable of active and deliberate development. Precisely how is not clear in all cases. In my own experience I have begun in small ways to develop these approaches to knowing both by being exposed to policy analysts who themselves possess some of the characteristics of metaphoric thought and by seeking to cultivate my own "ways of knowing".

Finally, let me state my conviction that developing metaphoric modes of thought with respect to policy-making will not by itself generate better policy. Just as the right hand must know what the left hand is doing, so the process of policy-making requires both rational, linear thought and analysis, and metaphoric thought and insight. I submit ladies and gentlemen, that the left hand has lessons for us which taken together with those of the right will enable us to conceive and forge stronger and better policy in education.

Sufi Tale

NEVER KNOW WHEN IT MIGHT COME IN USEFUL

Nasrudin sometimes took people for trips in his boat. One day a pedagogue hired him to ferry him across a very wide river. As soon as they were afloat, the scholar asked whether it was going to be rough.

"Don't ask me nothing about it," said Nasrudin.

"Have you never studied grammar?"

"No," said the Mulla.

"In that case, half your life has been wasted."

The Mulla said nothing.

Soon a terrible storm blew up. The Mulla's crazy cockleshell was filling with water. He leaned over toward his companion. "Have you ever learned to swim?"

"No," said the pedant.

"In that case, schoolmaster, <u>all</u> your life is lost for we are sinking."

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